Life is like a box of chocolates: meeting the periodontal challenge

PROFESSOR ANTHONY ROBERTS on why managing patients with perio disease is akin to delving into a box of chocolates – you never know what you're going to get...

WHEN considering periodontal disease, it seems prudent, initially, to consider the magnitude of the challenge in dentistry. The *Adult Dental Health (ADH) Survey 2009* indicates that the number of people aged 65 years and over who are edentulous has reduced from circa 75 per cent in 1978 to less than 25 per cent, hopefully due, in no small part, to improvements in the quality care we provide our patients. Clearly, not all of the teeth lost are solely due to periodontal disease, but the *ADH Survey* tells us that approximately 50 per cent of the population has an inflammatory disease affecting the periodontal tissues. In addition, overall, 45 per cent of adults had periodontal (gum) pocketing exceeding 4mm and, no doubt, unfortunately, some of these teeth will be lost. The conclusions we can draw from the *ADH Survey* in periodontal terms are:

- Perio disease remains common at a low level.
- Overall, a reduction in mild disease.
- There is a slight increase in the prevalence of more severe disease.
- The impact of severe disease is concentrated in a small proportion of the population.
- There are associations with a range of health behaviours, including smoking, infrequent toothbrushing and social gradient (albeit minor).

Clearly, when this information is considered as a whole, the prevalence of periodontal conditions is significant.

Gingivitis and periodontitis

This was the focus of the fifth *European Workshop on Periodontology* in 2005, where the panel considered whether gingivitis and periodontitis are a continuum of the same inflammatory disease. To summarise their conclusions:

- Gingivitis and periodontitis are a continuum of the same inflammatory disease.
- Not all patients with gingivitis will go on to develop periodontitis.
- Chronic inflammatory periodontal disease encompasses gingivitis and periodontitis as tangible clinical forms.

So, it would appear that there are two patient types. Some patients will retain their gingivitis state in perpetuity; they have chronic gingivitis, poor oral health and high plaque scores, and yet they seem resistant to attachment loss. However, others will go on to develop periodontitis, which, of course, may, unfortunately, lead to tooth loss.

Importantly, given the evidence reviewed at the *European Workshop*, the precursor to periodontitis is always gingivitis, and to extrapolate from this, perhaps greater focus should be directed by dental care professionals on the management of gingivitis so that initiation of periodontitis is prevented.

Who's going to get periodontitis?

Epidemiological data indicates that a significant number of patients with gingivitis will develop periodontitis, but how do we know who's at risk?

There are a variety of elements in what we do on a daily basis in our clinics that can help us try to understand who will develop periodontitis. For example, there is the Basic Periodontal Examination (BPE) screening tool to help identify patients developing periodontal problems. Readers should note that there have been some recent changes to the BPE system and the latest guidance document from the British Society of Periodontology can be found at www.bsperio.org.uk/publications/downloads/39_143748_bpe2011.pdf. and www.bsperio.org.uk/publications/downloads/53_085556_executive-summary-bsp_bspd-perio-guidelines-for-the-under-18s.pdf.

Of course, the BPE is just one assessment tool that identifies individual patients where the disease process has already begun. Significant efforts have also been made to try to identify those individuals at risk of developing disease, but that may not have the disease already. Lang & Tonetti's (1996) Bernese spider web/hexagon offers a further tool for patient assessment, this time from a risk factor perspective. Versions are available at www.perio-tools.com/pra/en/.

As the various criteria are entered for each patient (for example, age, smoking status, etc.), the schematic diagram pictorially represents the level of risk that the patient exhibits, with the anticipation that any modifiable risk factors can be addressed to minimise the risk of developing periodontitis. Other excellent examples of periodontal risk assessments/calculators are changing the way we bring these factors together in a form that is understandable to clinicians and patients alike, reinforcing the importance of managing periodontitis by preventing it before it starts: www.previser.co.uk.

How will periodontitis progress?

There are many studies that have aimed to identify the natural history of periodontal diseases and, broadly, there are two patterns of disease progression:

1. The linear model where a patient loses attachment in a linear manner, which is relatively predictable.

2. The discontinuous model where the disease activity increases sporadically over time. There will be periods of increased and decreased disease activity and progressive loss of attachment over time in an episodic manner. This pattern of disease is much less predictable.

Ultimately, however, there are diverse groups of patients whose oral health behaves differently and it is very difficult – almost impossible – to predict how periodontitis will progress in individual patients.

Types of treatment

Currently, oral plaque biofilm disruption is the most effective way to treat and prevent both conditions, through mechanical and, where appropriate, chemical intervention. On a day-to-day basis, the emphasis is on the patient to affect their plaque biofilm (removal or disruption) using the variety of homecare products available. From a clinician's perspective, in terms of scheduling treatment for patients with chronic periodontitis, there are three main approaches that have been implemented over the years:

- Conventional Staged Debridement (CSD), which involves scaling and root surface debridement over a period of weeks in a quadrant-wise or sextant-wise manner.
- Full Mouth Disinfection (FMDis), which comprises scaling and root surface debridement in the shortest period of time and the use of chlorhexidine on the tongue, tonsils and sub-gingivally with the aim of minimising the bacterial load in the various bacterial reservoirs in and around the oral cavity.
- Full Mouth Debridement (FMDeb), which is essentially the same as the FMDis approach, but without the adjunctive use of chlorhexidine.

Which treatment regime is best for patients with chronic periodontitis? Thankfully, all of the modalities achieve much the same outcomes. FMDis and FMDeb do offer slightly better statistical results, but whether they are clinically significant is debatable. Therefore, all three treatment modalities may be recommended for chronic periodontitis (without preference), provided adequate preventive measures are delivered. A different conclusion is conferred to patients with aggressive periodontitis where FMDeb with the adjunctive use of systemic antimicrobials is commonly advocated as the preferred non-surgical treatment modality.

Outcomes of treatment?

Treatment outcome is dependent upon many factors, including the extent of the initial pocketing, location, plaque control and treatment quality. Local anatomy is highly significant, for example, furcation involvement is also particularly important in terms of treatment outcomes. Data from Claffey et al (1990) indicates that the outcome of periodontal treatment in teeth that are furcally involved is considerably worse than where teeth have no furcation involved.

Many patients will require several cycles of CSD/FMDis/FMDeb to reduce periodontal pocketing to an acceptable level, which is a point often overlooked in primary care settings where the expectation is that one cycle of treatment is enough; often, it won't be. The requirement for multiple treatment cycles needs to be communicated to patients so that they have realistic expectations relating to the time involved and the financial elements required to achieve a successful periodontal outcome. Of course, the requirements of a periodontal maintenance regime also need to be communicated fully.

To conclude, there are a significant number of patients with chronic gingivitis and, given the consensus that this state has the potential to deteriorate to chronic periodontitis, the management of gingivitis patients should be a focus of attention. Positive improvements in periodontal health can be provided using a variety of treatment approaches, but consistently affecting the dental plaque biofilm is key. Unfortunately, the pathogenesis of periodontal disease is complex, and while there are tools to assist clinicians to predict those individuals who are likely to have periodontitis, there is currently no crystal ball that is 100 per cent accurate. As a consequence, patients with periodontitis are a significant challenge and outcomes are often like a box of chocolates. ■

Reader enquiry: 120

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